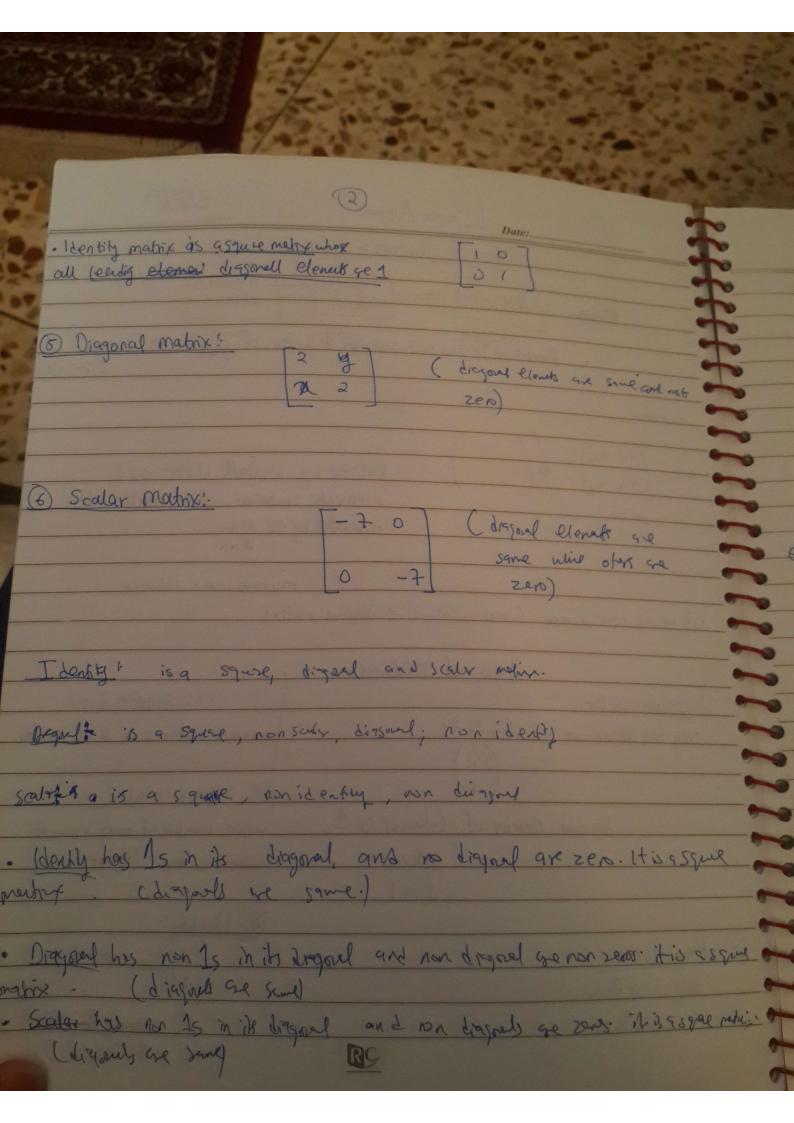
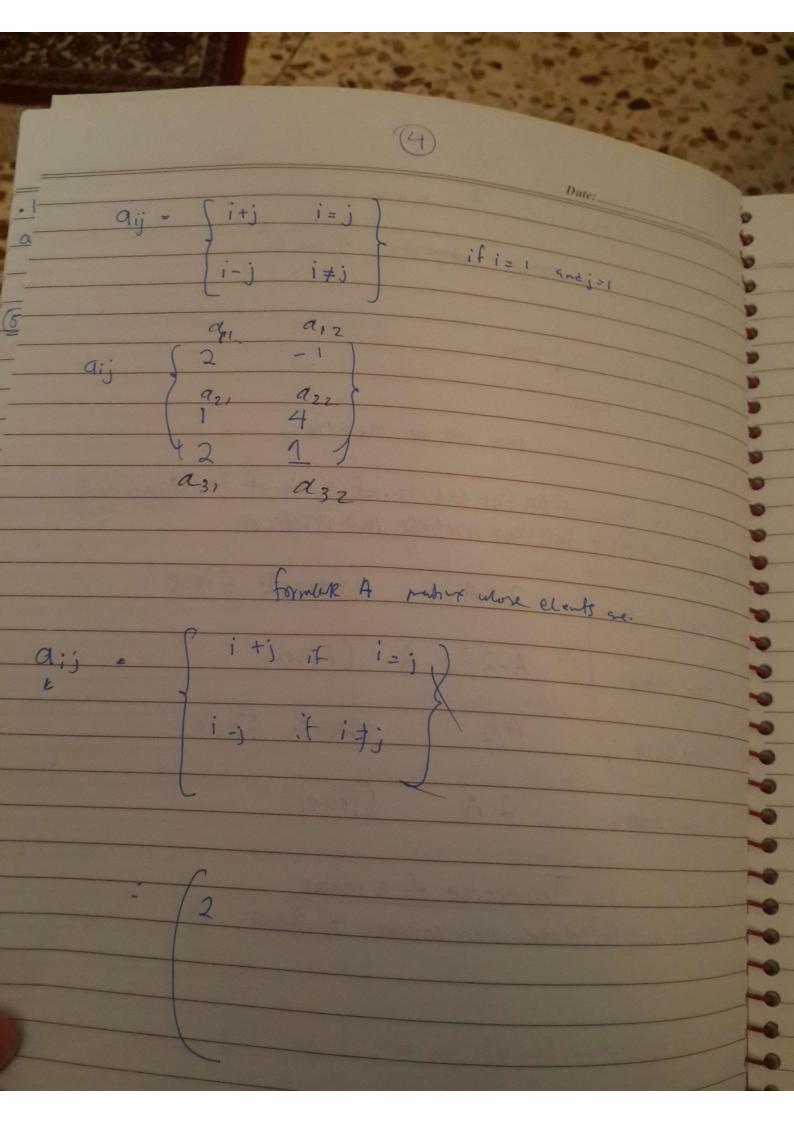
Linear Algebra Gayss Jordan Flimination matrix (matrices) Procedure to find out solution of system of equation =) Jordan
Elimination · matrix 911 912 B= Dehoted by Capitall letters and clements contigled are small letter. opperented by cg. mxn. M2 10WS, N2 Columns - if we say NXN or MXM (rous = colums) =) square metix. types of matrices 1 Colymn Vector 1x1 satisfies both (1,2,3) only one column. eq. column vector and Row vector. (3) square matix because number of columns is 1 when number of rows = no. of MXI colums. eq (M=n) 3 × 1 (4) Identity: Row vector only one Row. /s secondary disjoint. IXA RC

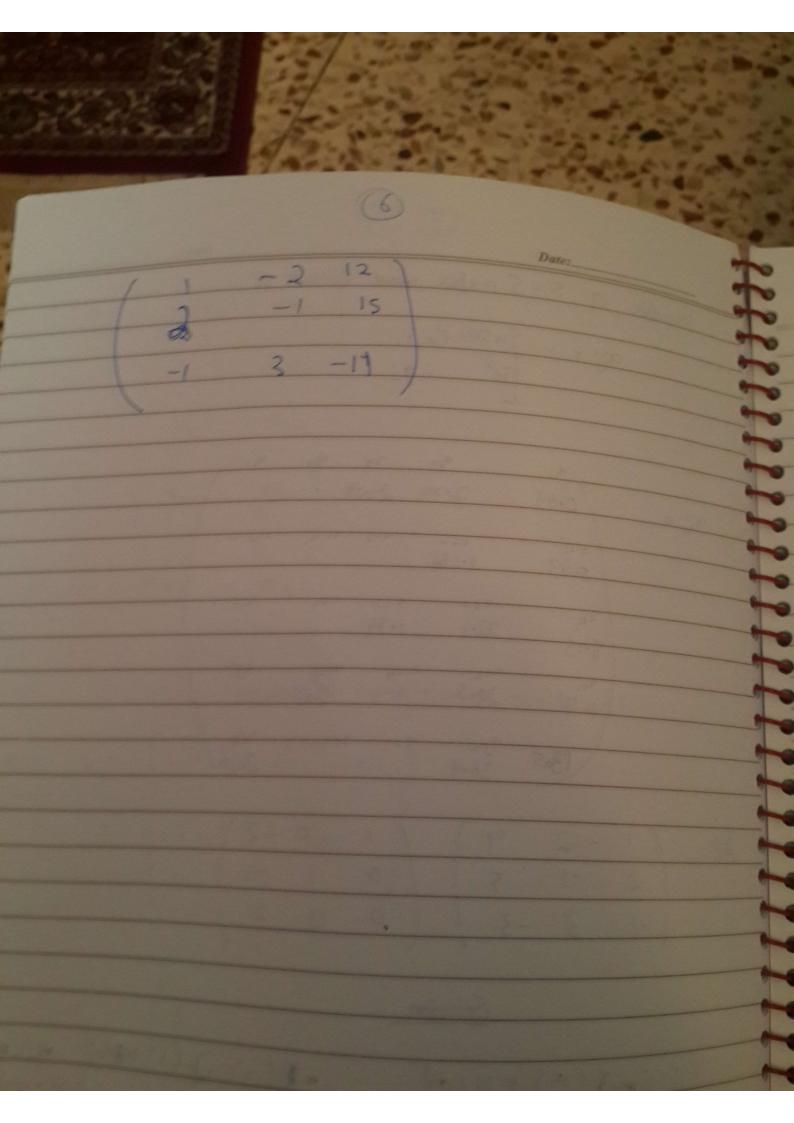


(3) By MATINA oncebring AxB- A and B if mr top ing 7 ns is, other will be MAFRE . No. of rows of the first and no. of colonis of the second are equal. Hen only we can multiply two matrices 2+A (False) Scalar Addition A-2/2-A (False) Scalar subdrahm A/2 (Truet (faise) scalor Division 1 (True) 2 A 1 Subbat multitudes Transponse of a matrix Change of rows to columns and columns to Rows.

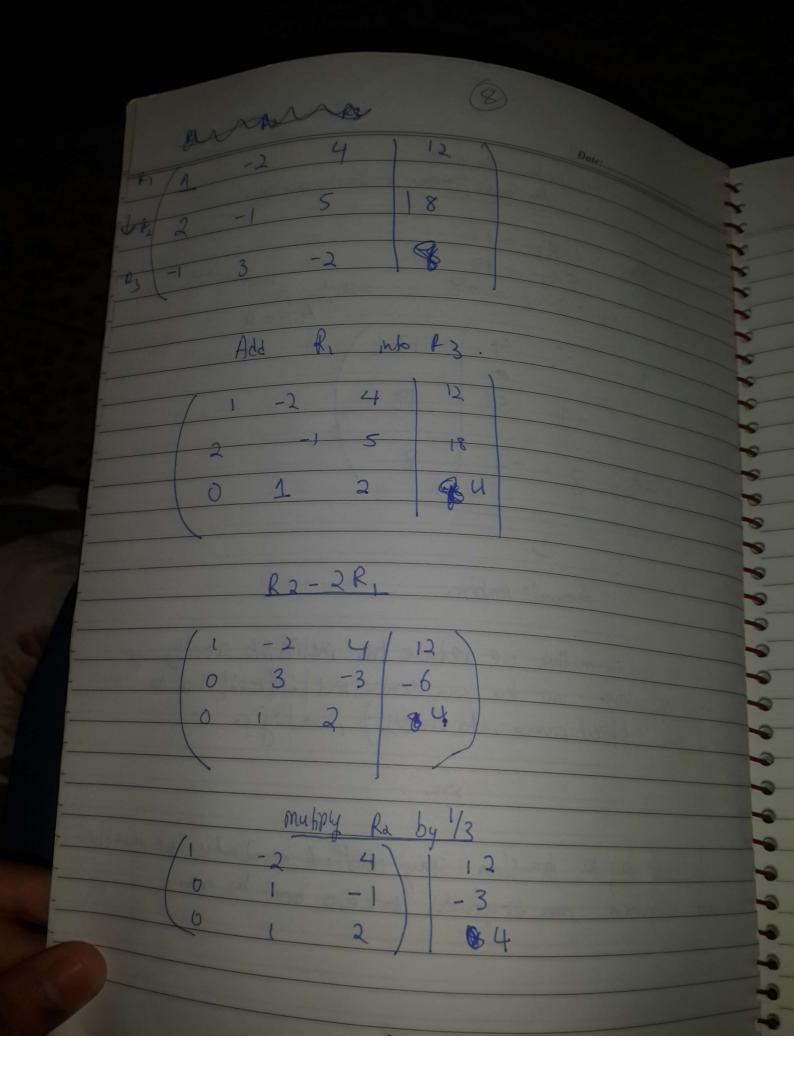


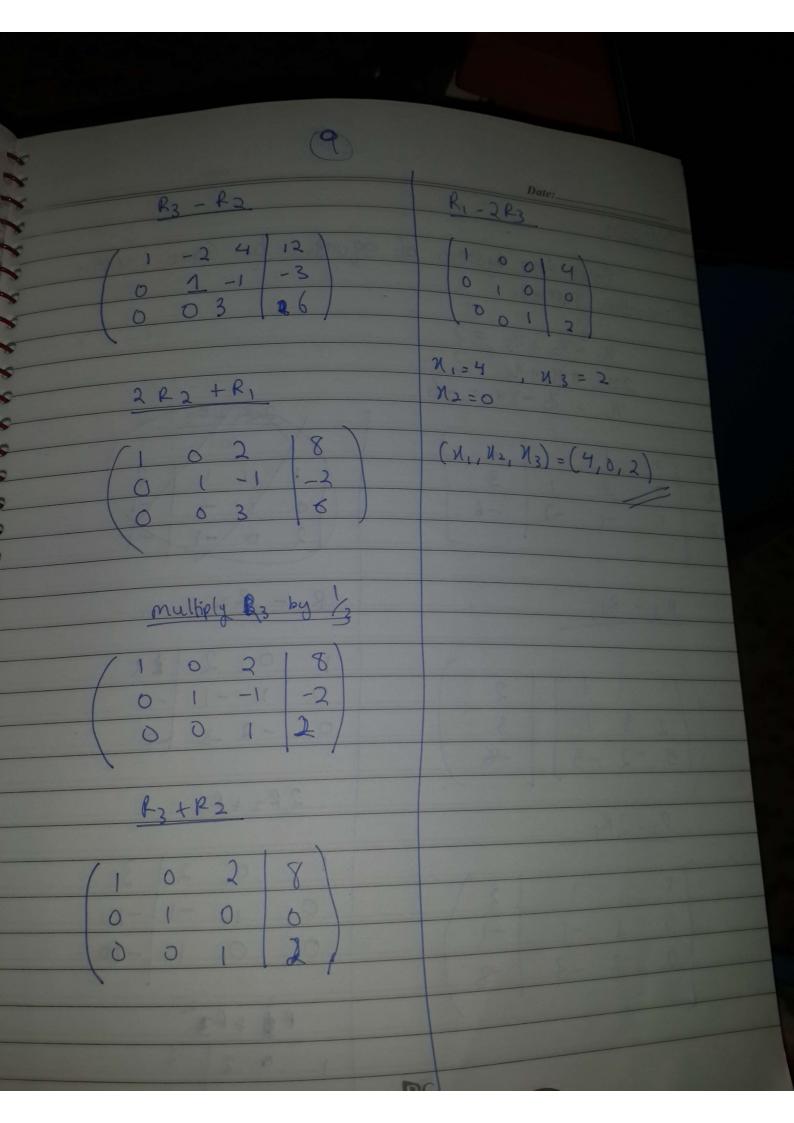
322255555555555 (5) formulate a 5×5 major what elevents se Sh (i+j) i = j aij = ie i ji 913 = 0.69 1-386 5.43 971 8.15 29.5 10.8 36.9 13.5 955 AB = 0 -3 0 0 2 Solution · (0) -2 (1) +4 (0) +1 (2) (1-) (2) 1(1)4-2(0)+4(0) 2(2) -1(-1) +1/2 2(0) -1(1) +5(1) 2(1) -- 1(0) + 5(0) -1 (2) +3(-1) =3(2) -1(0) +3(1) #3(0) L'11 1 + 3 (0) + 3 (0) .

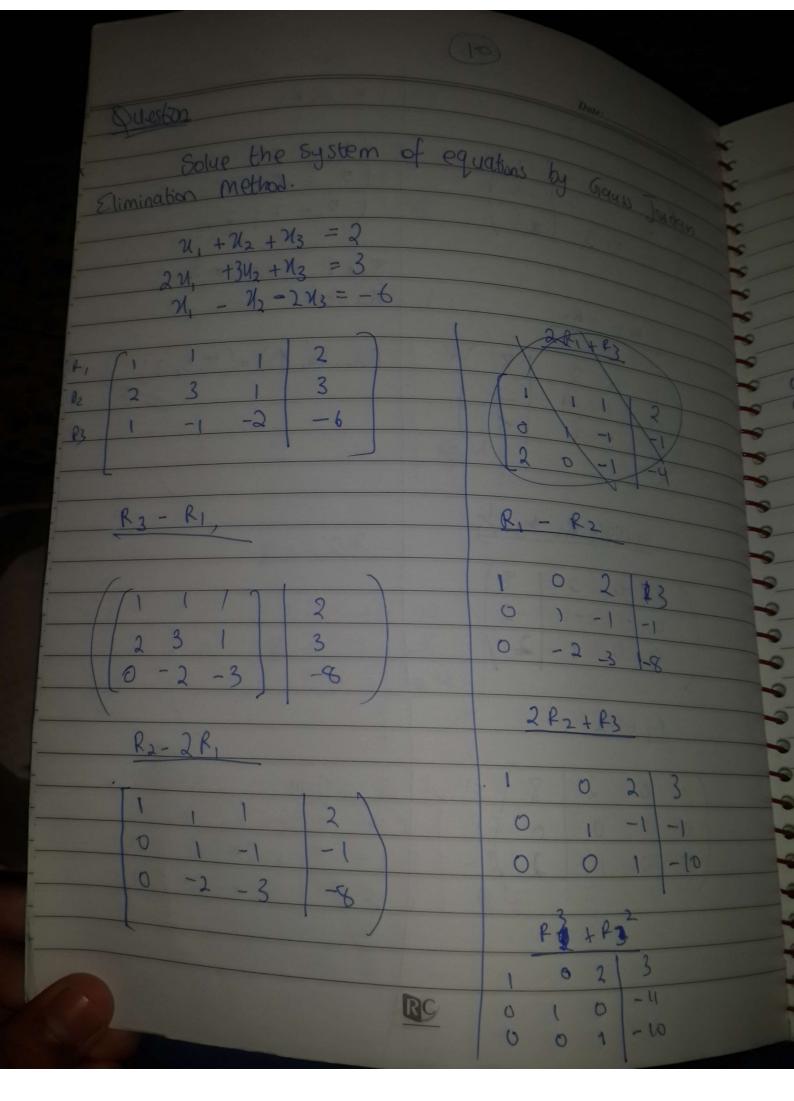
9



This same with fames Jordan reduction on trad - M, + 3 K2 - 2×3 = -8 12 18 1 Acquerte motory. in Gaus Jordan method, we reduce this metrix into identity by apply four operations. We do any scale Mul L. MADI hus to handern his Officer many mo stady), In thy). 202 and the forms form non stagements to seen one by one. 0 9 9 RC







Determinant of a matrix

1×1 matrix

Determinable of a IXI makix is the element itself

2×2 matrix

$$A = \begin{pmatrix} 2 \times 3 \\ 4 / 1 \end{pmatrix} = \begin{pmatrix} 2 \times 1 \\ - \begin{pmatrix} 4 \times 3 \\ 2 - 12 \end{pmatrix}$$

$$= -10$$

3×3 machix

. 1 - 1 -					
[AI -	0 -3	-	1 5 3		1351
3	5 3			-0(+-2)	
2	1 2				12 1

RC

(A) =21

Minor of the even

It is denoted by Mij and is the determinant

Yerrains after deleting row and column of A.

(ofactor of the element air

It is denoted by Cij and is given by

Cij = (-1) Mij

Note: the minor and coforder differs in af most sign

i stands for row and j Stands for

A= (1 -1 3)

Minor of air: Mir = -1 3

Minor of air: Mir = -1 3

(-1) It is denoted by Mij and is the determinant of the matrix that Note! the minor and cofeeler differ in af most sign. (ij = +mi; i stands for row and j stands for column. =(-1)-(-4) -1+4 (-1) . (1-) ×3 we factly of ay Cij=Mij RC

			(14			Date			
Ace	C ₁	<u>G</u> 2	Cis		1	0	31	***	The
	(31	(22	(23	101-1	4	-1	2	333	the oli
	(31						1		ik
(1 = (-1)	Mu	7	A		3	-3	-8		6
(4 = 3			o Lance	91 =	3	-10	-1		999
(17 = -4 (13 = -6 (21 = -6 (0	facl			1/2	0	13			66
(24 = 1	3 9	1 9	1-		2 11	M	, p 3	- VOSTA	999
(3) z 3 (32 z 10	PAIL O	5	7						7
I						3	- M		
	2								
			1-			4412			

The determinant of a square making is the sum of the first one and truly estados.

if A is 3x3, IAI = and (n + The determinant of a square matrix as the sund the products of

Ai of 2x2

A; of 3 x 3

Aj= (Ac)t

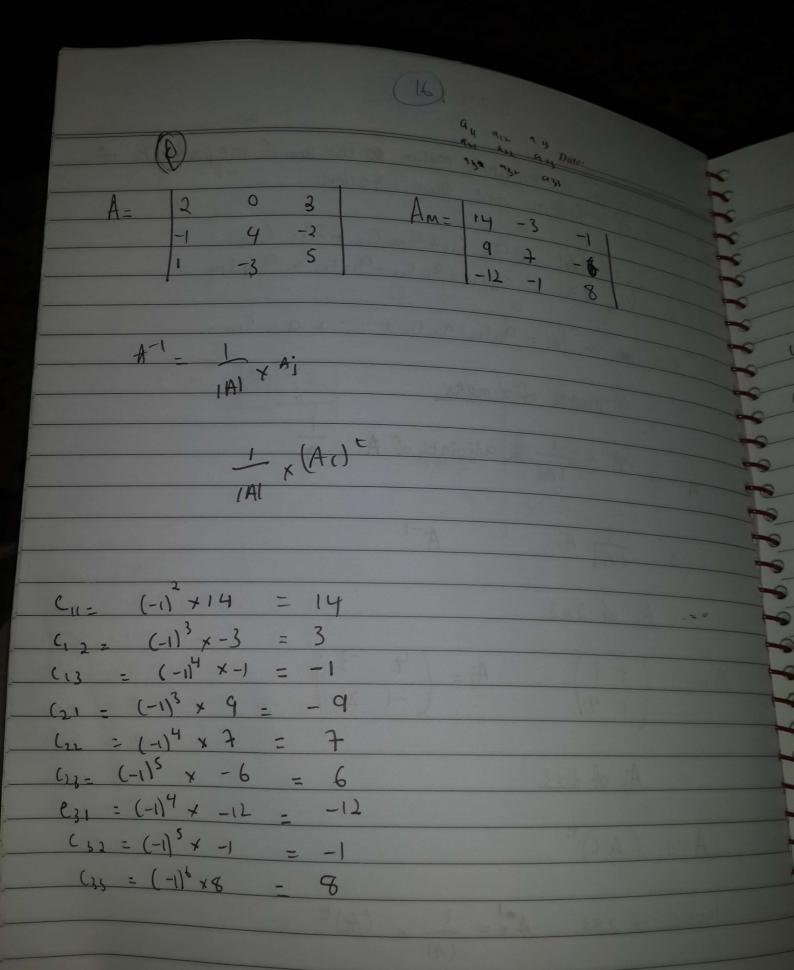
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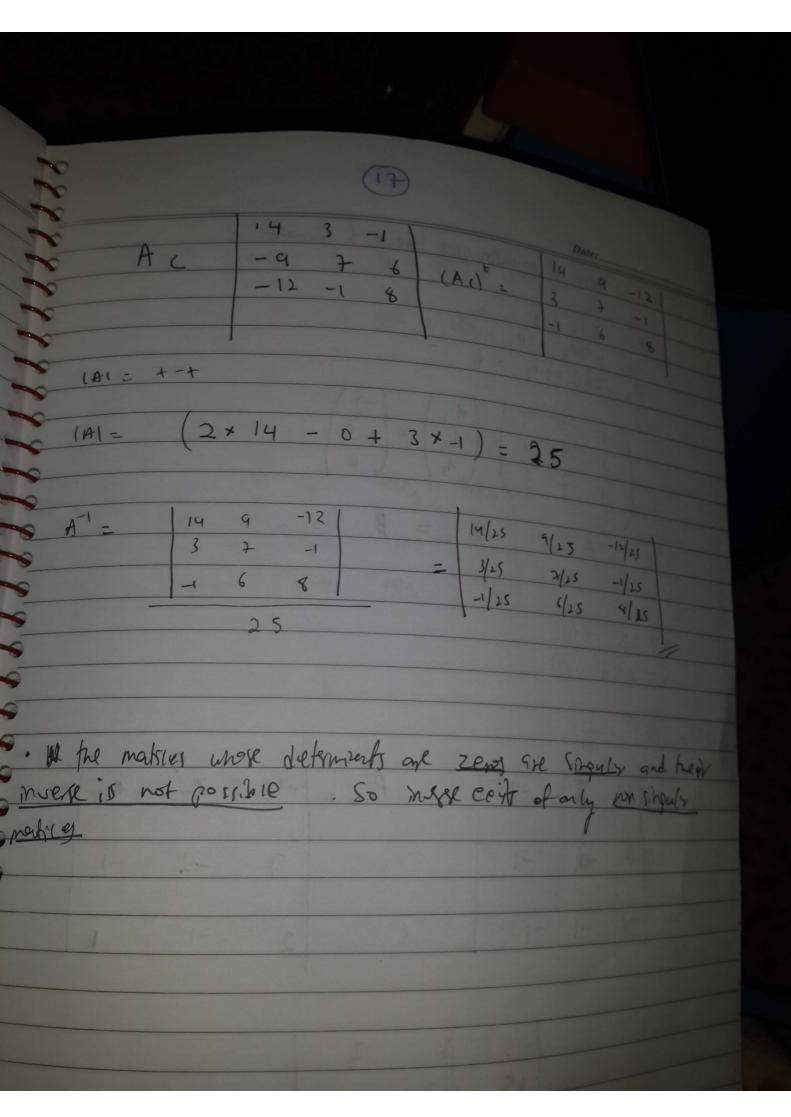
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Investor of 3 x3 A = 1 (Ac) t





Solve the system of equation using Inverse of a matrix:

 $x_1 + 3u_2 + 43 = -2$ $2u_1 + 5u_2 + 43 = -5$ $u_1 + 2u_2 + 3u_3 = 6$

 $A \times = B$

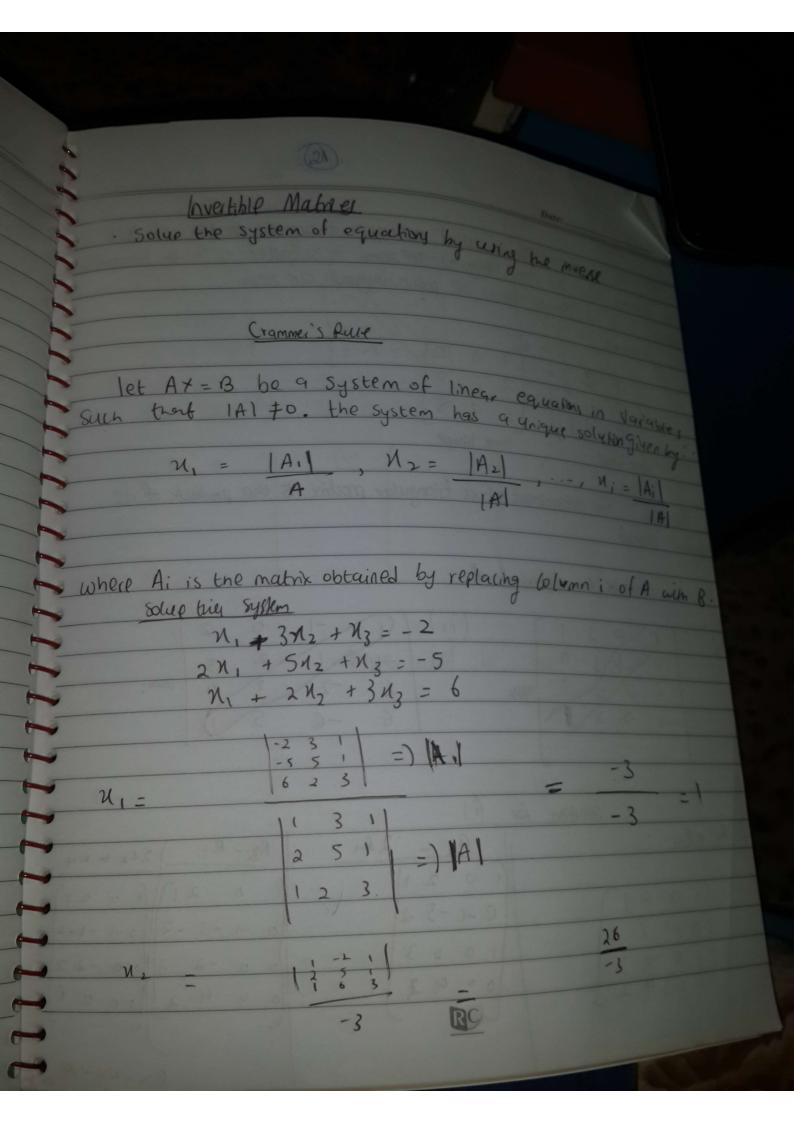
AY = B - 0 X = A - B - 0

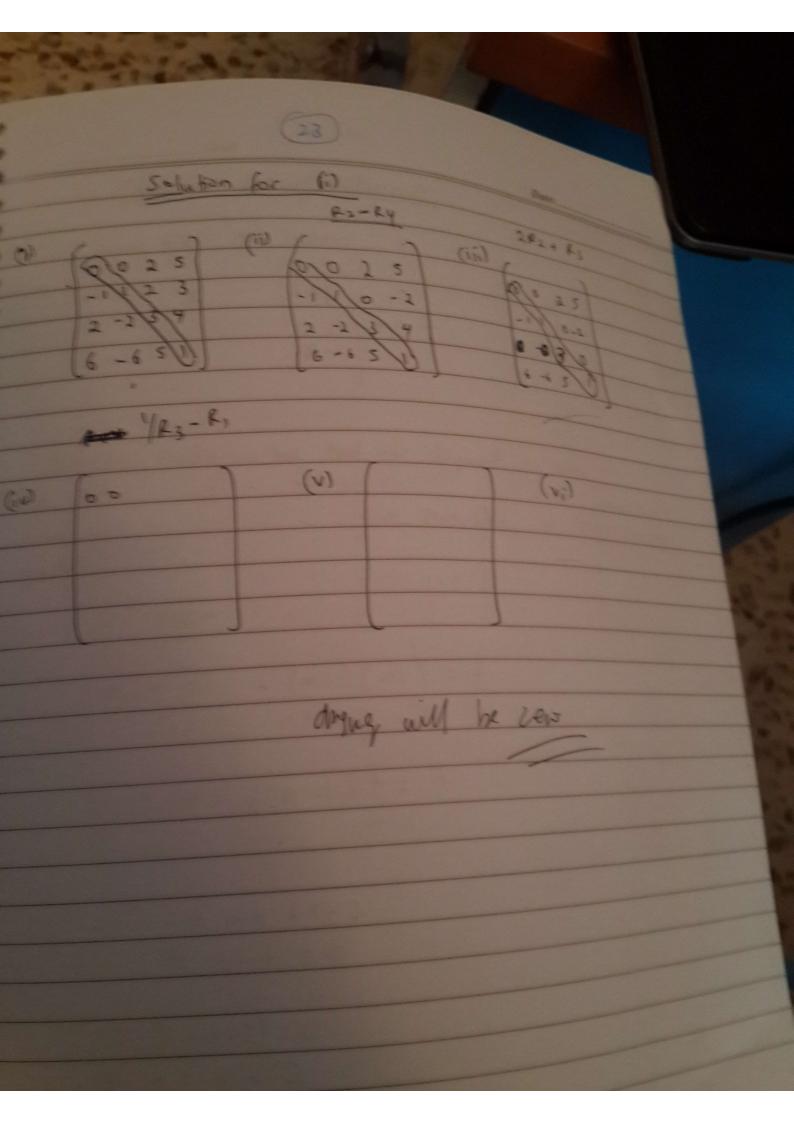
A-1 = (A() + 1

	•						6		
AM =	13	9	-1	MAN	Ac=	-13	1	+1	
		2							
	7	100	-1			7	-2	-)	
ay a12 913									1
921 922 923	-2	-1	-1			2	-1	1	1
931 911 923						1			

(4.)				1
(11() =	-13	+	2,	1
	25	- 2	-1	1
	01	- (1	I
		RC		T

Marie Committee of the 1A1= 1(1 × 13) - (3 × 5) + 000 × -1 1A1 = 13 - 15 was 1980 1A1 = -3 - x (AO) IAI -13/18-3 -1/8-3 -1/8-3 1/8-3 -1/8-3 -1/8-3 9999999999 A'X B -13/3×22 7/-3 ×-5 2/-3 × 6 35/3 -26/3 0 10/3 -10/3 2 5/-3 x-2 -4/-3 x-5 -1/-3 x 6 0 0 2/3 -5/3 -2 1/-3 x-2 -1/-3 x-5 1/-3 x 6 9 BI



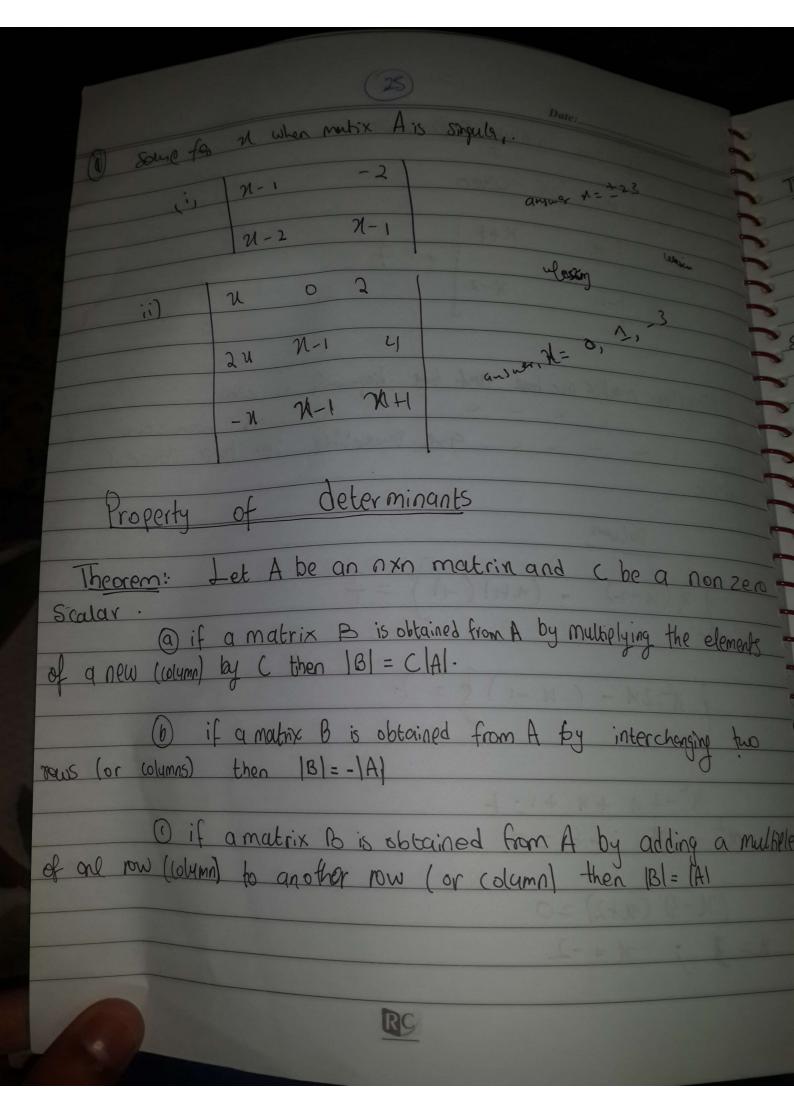


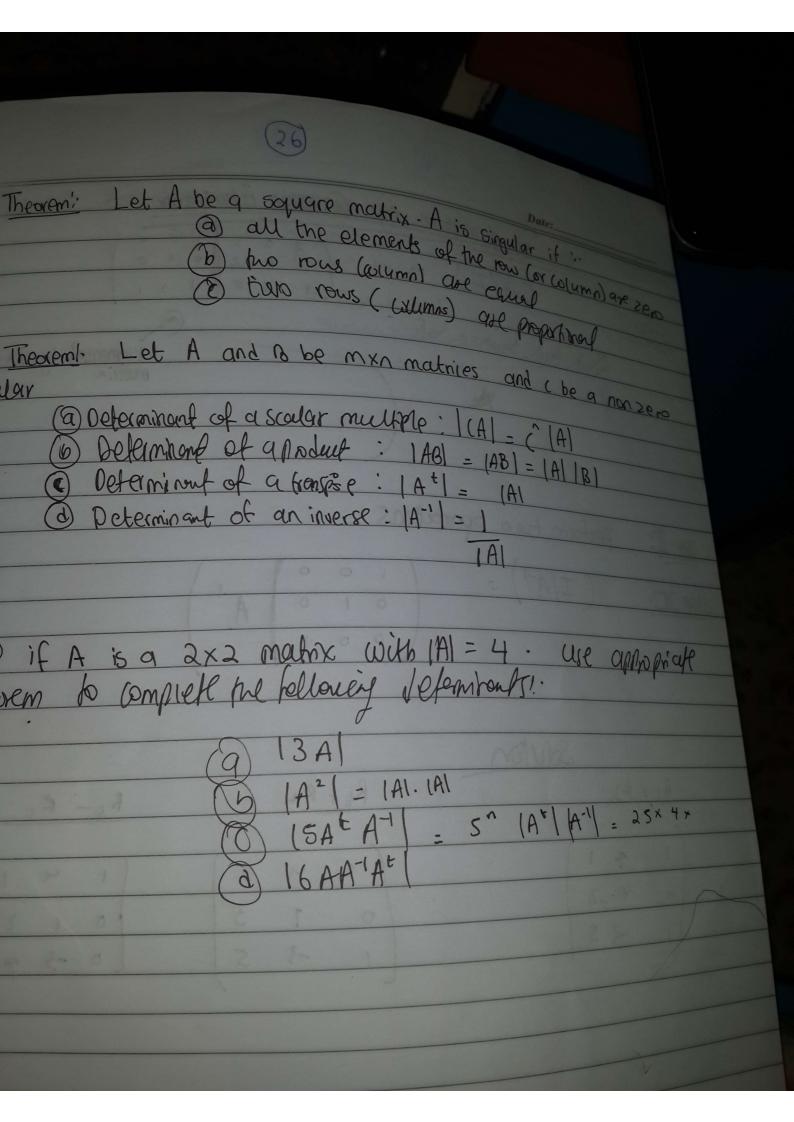
Equations Involving De

(1) Solve for 'n' when

(n) n+1 Equations Involving Deferminants 21+1 n Singular matix que tope that has ligonall as zon. exisk. Solven gn(n-2) - (n+1)(-1) = 7 q N2-24 - (-4-1) = 2 $n^2 - 2n + n + 1 = 7$ (U-3) (U+2) =0 N=3; N=-2

RC





Inverse of a matrix by Gaussian Elimination Step T: find the inverse lof augmented by 3x3 Perform two operations (I/A-1) = 0 Step IVI-0 0 Solution Rs+R2 RI+FZ 0 -3 5 5